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WHAT IS CLAIMED IS:

1. A method for manufacturing a semiconductor device,
comprising the steps of:

5 forming, in a semiconductor layer formed on a first
insulating film, an element isolation groove extending to the
first insulating film; and

depositing a second insulating film in the element
isolation groove by using a vapor deposition method.

10 2. The method according to claim 1, wherein the step of
depositing the second insulating film is conducted so as to
partially fill the element isolation groove, the method
further comprising, after the step of depositing the second
insulating film, the step of forming an embedded layer so as
15 to completely fill the element isolation groove.

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3. The method according to claim 2, further comprising,
after the step of forming the embedded layer, the step of
forming a third insulating film on the embedded layer.

20 4. The method according to claim 1, further comprising,
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between the step of forming the element isolation groove and
the step of depositing the second insulating film, the step
of forming an oxide film by oxidizing the semiconductor layer
25 at a wall surface of the element isolation groove, wherein

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~~the step of depositing the second insulating film includes
the step of depositing the second insulating film so as to
cover the oxide film.~~

5 5. The method according to claim 4, wherein the oxide
film has a thickness of 50 nm or less.